Translation 12-22-04

PATENT COOPERATION TREATY

PCT

Rec'd PCT/PTO 26 AUG 2005

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

10/5/2063

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference B0433WO	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/FR2003/001254	International filing date (*day/month/year*) 18 avril 2003 (18.04.2003)	Priority date (*day/month/year*) 25 avril 2002 (25.04.2002)
International Patent Classification (IPC) or national classification and IPC C23C 16/40		
Applicant CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
22 novembre 2003 (22.11.2003)	31 August 2004 (31.08.2004)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/FR2003/001254

I. Basis of the report

1. This report has been drawn on the basis of (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

☒ the international application as originally filed.

☒ the description, pages 1-10, as originally filed,
pages _____, filed with the demand,
pages _____, filed with the letter of _____,
pages _____, filed with the letter of _____.

☒ the claims, Nos. 1-9, as originally filed,
Nos. _____, as amended under Article 19,
Nos. _____, filed with the demand,
Nos. _____, filed with the letter of _____,
Nos. _____, filed with the letter of _____.

☒ the drawings, sheets/fig 1/1, as originally filed,
sheets/fig _____, filed with the demand,
sheets/fig _____, filed with the letter of _____,
sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-8	YES
	Claims	9	NO
Inventive step (IS)	Claims	1-8	YES
	Claims	9	NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following documents:

D1: MIURA S ET AL: "Structural and electrical properties of liquid phase epitaxially grown Y1Ba2Cu3Ox films" PHYSICA C, NORTH-HOLLAND PUBLISHING, AMSTERDAM, NL, vol. 278, no. 3-4, 1 May 1997 (1997-05-01), pages 201-206, XP004083486 ISSN: 0921-4534;

D2: HOLLMANN E K ET AL: "The growth of thick Yba2Cu3O7-x films by DC magnetron sputtering" PHYSICA C, NORTH-HOLLAND PUBLISHING, AMSTERDAM, NL, vol. 338, no. 3, 15 August 2000 (2000-08-15), pages 246-250, XP004229152 ISSN: 0921-4534;

D3: T C SHIELDS ET AL: "Spray pyrolysis of epitaxial YBCO films on (100) single crystal SrTiO3 substrates" SUPERCONDUCTOR SCIENCE AND TECHNOLOGY, vol. 15, 18 December 2001 (2001-12-18) pages 99-103, XP002226907, IOP PUBLISHING, TECHNO HOUSE, BRISTOL, GB ISSN: 0953-2048.

1. Independent claim 9

The present application does not fulfil the

requirements set forth in PCT Article 33(1) because the subject matter of claim 9 does not comply with the requirement of novelty defined in PCT Article 33(2).

In claim 9, a product, i.e. a substrate coated with a $YBa_2Cu_3O_{7-y}$ film, is defined by means of the production method therefor. As a result, said claim is not clear (PCT Article 6) because the properties of the resulting product are not specified. It is clear from the description that said $YBa_2Cu_3O_{7-y}$ films are several micrometers thick and have a critical current density of more than 10^6 A/cm^2 at 77k. Documents D1 (see figure 6) and D2 (see figure 6) disclose substrates coated with micrometer films that have the same composition and the same minimum critical current density value. It follows that, even though said coated substrates are not produced using the method as per any one of claims 1-8, documents D1 and D2 deprive the subject matter of claim 9 of novelty.

The present application does not fulfil the requirements set forth in PCT Article 33(1) because the subject matter of claim 9 does not involve an inventive step as defined in PCT Article 33(3). Since said coated substrate is not novel, it cannot involve an inventive step.

2. **Independent claim 1**

Document D3, which is considered to be the prior art closest to the subject matter of claim 1, describes (the references between parentheses apply to said document) a method for preparing a micrometer

$YBa_2Cu_3O_{7-y}$ film by means of a process of ultrasonic spray pyrolysis, optionally followed by an oxygen heat treatment step at 500°C. In said document, this leads to $YBa_2Cu_3O_{7-y}$ films with a critical current density of up to 1.9×10^5 A/cm2 at 77k and a degree of oxidation that is probably lower ("y" is higher). It follows that the subject matter of claim 1 differs from this known method in that a precursor solution containing different concentrations of precursors is used and the heat treatment includes two steps as specified in the claim. The problem that the present invention is intended to solve can therefore be considered to be that of enhancing the supraconducting properties of $YBa_2Cu_3O_{7-y}$ films produced by means of ultrasonic spray pyrolysis. The solution to this problem, as proposed in claim 1 of the present application, is considered to involve an inventive step (PCT Article 33(3)) because it is not suggested in the prior art.

Unlike the methods proposed in D1 and D2, the method as per claim 1 can be implemented continuously.

Claims 2-8 are dependent on claim 1 and therefore also fulfil, as such, the PCT requirements of novelty and inventive step.

The claimed invention is industrially applicable in the electronics industry.